Issue 1.5 april 96 FREE

computer arts

The magazine of art, desi gy

Reboot

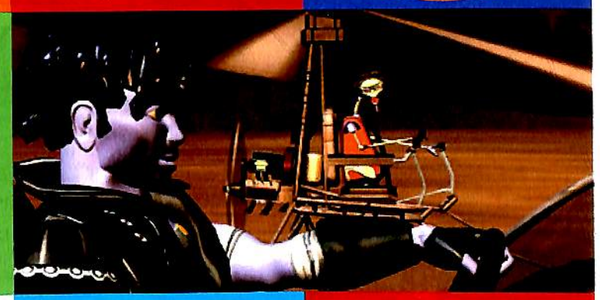
An exclusive behind-the-scenes look at the making of Mainframe Studios' ground-breaking 3D cartoon series.

Find out what's new from the digital trenches of the electronic art world.

computer arts The magazine of art, design and technology

contents

Reboot
On the digital set of the amazing 3D cartoon series.



Electric Image
One of the UK's premier production houses talks about its special effects for the new sci-fi blockbuster, Space Truckers.

at the movies
We reveal the latest computer generated special effects.

Designers Republic
Ten years on and still going strong. Computer Arts talks to the design gurus at the Designers Republic.

Editor: Dan Slingsby Art Editor: Simon Barnes Publisher: Jane Ingham Copyright Future Publishing Limited 1996 Printed in the UK

Welcome to **Computer Arts**

Welcome to a FREE 32-page sampler of a new magazine aimed at the digital artist.

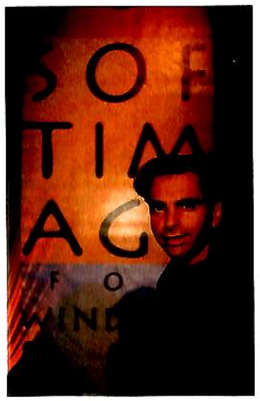
We like to think that Computer Arts is a breed apart from other PC magazines. We report on, encourage, nurture and facilitate creativity on the PC. The emphasis is firmly on new products, new techniques, hints and tips and forward-looking features – you definitely won't find any game reviews or business software on view here. We eschew such wanton trivia and concentrate exclusively on computer graphics, sound and multimedia. So, if you've got an interest in 3D graphics, animation, digital publishing, sound or multimedia, then this is the magazine for you.

Of course, in a mere 32 pages it's simply not possible to show you everything that the newsstand magazine will contain. We haven't got the space to show you what our step-by-step tutorials are like or what wonders you'll find on each issue's amazing CD-ROM (packed with fully working versions of commercial software). But never mind, soak up what's on offer here and then look out for Computer Arts in your local newsagents on Thursday 6th June. It should be fun.

Dan Slingsby, Editor

sketches

News, views and opinion from around the graphics and multimedia world ● Edited by **Dan Slingsby**



The man with the vision. Softimage's founder, Daniel Langlois, announced the launch of Softimage 3D on the PC.

Softimage 3D

The software that brought you the dinosaurs in Jurassic Park, the face-warping effects in The Mask, and the animated characters of Reboot, is now available for the PC. **Computer Arts** was at the London launch of Softimage 3D.

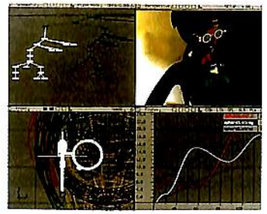
Softimage's credits read like a who's who of computer animation – apart from dinosaurs and green faces it's also played a starring role in other animation classics like Casper, and has contributed to video games and advertising by providing the famous Shell Dancing Petrol Pumps ad and the characters and animations in Virtua Fighter.

Until now, the distinction between high-end 3D animation and low-end work has been simple – high end 3D has been produced on hugely expensive UNIX/RISC based workstations, and low-end work has remained the preserve of relatively affordable but limited PC systems. This new version of Softimage, its first software release after last year's buy-out by Microsoft, changes everything. Over the last year the distinction between workstations and PCs has started to disappear, and the arrival of the PentiumPro and Windows NT has made it possible for a design house to buy Softimage technology for less than the price of a complete high end Mac page setting and photo-editing system.

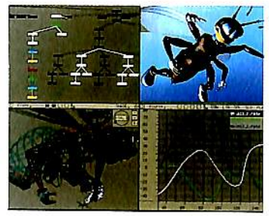
This is good news for designers and animators everywhere, as it brings a new set of high quality 3D animation tools within the reach of any dedicated professional without the need for a sizable investment in exotic and super-fast hardware. All of the Softimage tool set is included in the Windows NT version. Shape animation makes it possible to animate points on a surface for smooth movements and morphs. Expressions make it easy to link the movements of objects to each other, so all the muscles in a rendered face move naturally. Dynamic effects include the simulation of wind, gravity, friction and other real-world movement modifiers. There's also full support for motion capture, NURBS rendering for a high quality finish, and mental ray tracing – the most highly rated rendering system available.

The Inverse Kinematics facility can cope with hundreds of object chains, and the other tools can be blended and linked to make it easier to create unique signature effects. The expanded version of Softimage 3D – 3D Extreme – will be available for Windows NT systems in the first half of 1996. This adds meta-clay density-based modelling of organic and sculptured objects and particles for realistic simulation of fountains, explosions and other dynamic special effects to the 3D toolkit.

More than 600 people packed the Queen Elizabeth II conference hall to hear details about Softimage's launch in Europe. The audience was a who's who of the European computer graphics community with representatives from every major production house and creative agency as well as a smattering of top games publishers and multimedia companies.



For more than nine years, Softimage has provided digital artists with an intuitive, creative 3D modelling environment.



Softimage pioneered techniques such as inverse kinematics, spline-based modelling and motion capture technology.

Softimage is a powerful package and it needs powerful hardware to give its best. Anyone expecting to be able to run it on a typical home PC will be disappointed – the recommended minimum system is a fast PentiumPro with 64Mb of RAM, at least 1Gb of hard disk space and a supported OpenGL graphics accelerator card. The operating system is Windows NT3.51 with service pack 2. There are no plans for a Windows 95 version.

The software on its own sells for £6500, although Softimage recommend a number of combined hardware and software systems which have been fine-tuned to give the best performance. These include the multi-processor Intergraph TDZ300 system, which uses a 150MHz PentiumPro but can be expanded to work with two or even four processors, the Digital AlphaStation 600 which uses DEC's Alpha chip – possibly the most powerful microprocessor available today – and the NeTpower range of machines which uses the R4400 200MHz MIPS chipset. System prices range from £14000 to £24000 depending on the hardware used, and animation and rendering speeds are comparable to or even better than typical industry standard Silicon Graphics hardware. Cross-platform compatiblity is perfect. The user interface is identical, and files and other information can be exchanged freely both ways.

Softimage is actively targetting three markets – video and film, games design, and CAD – and has set up a network of specialist dealers to support the product. Video and film is being serviced by The Tyrell Corporation, one of the UK's oldest non-linear editing specialists. Aura Business Systems is handling the games connection, and Cadniques the CAD applications.

The company is part of Microsoft's Advanced Authoring Tools (AAT) group, which is developing a new generation of integrated media creation and authoring products to help fulfill the increasing demand for high-quality digital content in games, interactive titles and on the 'Net.

What this means for non-professional users remains to be seen. A sub-£1000 Softimage Lite is unlikely to appear any time soon, but with 150MHz PentiumPro power almost certain to appear in the home within the next couple of years it's highly likely that the technology will become available to everyone, especially once it starts being hidden away inside games and VRML web applets. In the meantime prices of low and mid-end animation software are already crashdiving, and it's only a matter of time before home animators will be able to use Softimage-like features on competing software.

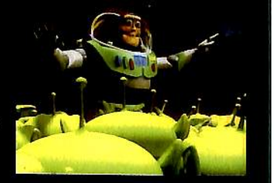
At the moment there are no plans to port the other packages in the Softimage portfolio – the Eddie digital compositing system and the Toons cartoon editing suite – over to Windows NT. These remain available only on industry standard SGI/Unix workstations. But if the Windows NT version of Softimage is successful – and there's every reason to think that it will be – expect to see Toons and Eddie appearing on a PC near you soon.

For an example of what Softimage can do see the Reboot feature on pages 16-19. For more details on the product itself contact Tracey Fitzpatrick at the UK office of Softimage on 0171 287 0708. Look out for a full review of Softimage 3D in the next issue of Computer Arts.

at the movies

Check out the latest computer generated special effects to hit a silver screen near you soon.

TOY STORY

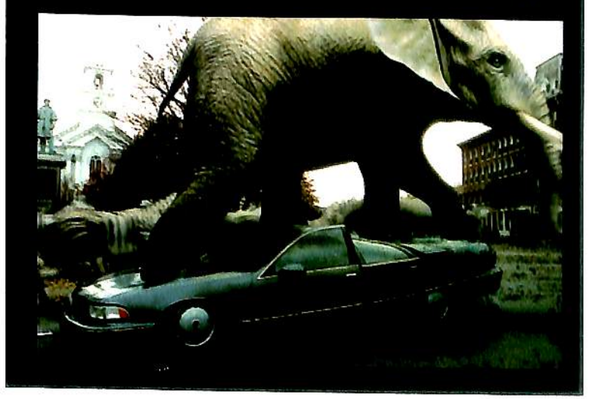


The world's first fully computer-animated feature film is set to blaze a digital trail across cinema screens everywhere this month. If you read our exclusive feature on the making of Toy Story in issue one of Computer Arts, you'll already know how good it is.

John Lasseter, who co-wrote and directed the movie, is to receive a Special Achievement Oscar from the Academy of Motion Picture Arts and Sciences for his work. 'I'm thrilled and honoured at the recognition the Academy has given to this new medium of digital animation,' gushed Lasseter. 'It is a tribute to all the tremendously talented people at Pixar who have made this possible.'

JUMANJI

Mixing animatronics with state-of-the-art computer animation, Jumanji is the latest vehicle for madcap comedian, Robin Williams. Unfortunately for Robin, he's completely upstaged by the special effects – so much so, in fact, that he might as well have stayed in his trailer and got someone else to act the part. The impressive (if not always convincing) effects range from a stampede of elephants, rhinos and zebras to a floor that turns into quicksand and sucks Williams into it. What do they say about acting with children and animals? Better add computer graphics to the list.



A place in the sun

A new pan-European collaborative endeavour looks set to become one of the year's most exciting artistic projects. **Computer Arts** announces its sponsorship of The Eklisia Project.

The Eklisia Project provides a relaxed creative environment where artists are free to express themselves in any way they want. All the organisers ask for is that some form of creative endeavour is left behind after your stay – be it a work of art or performing a free concert for the local townfolk. The computer graphics project will form the major focus of the centre for 96.

The project has built up an extensive collection of donated artwork – which regularly gets displayed.

The converted church is the creative epicentre for all the work that is produced throughout the summer months.

The Eklisia Project is the work of Christel Roelans and Mesut Pekergin, who have created an open arts centre in Gumusluk in Turkey. The centre was founded in 1990 after the organisers took over an abandoned church and converted it to provide a local concert hall and exhibition space. Since then it has expanded and now offers a unique resource to artists the world over. The centre runs on a donations-only basis and aims to give artists a chance to create new work in a relaxed and unpressured environment. Anyone who is invited can stay at Eklisia for free for two weeks as long as they leave something behind when they leave, either in the form of a visual piece or a concert of musical compositions and performances. Featured artists to date have included Charles Hill, Leon Tarciewicz, Carlo Domeniconi and the Regent Quartet.

So far most of the work at Eklisia has been in traditional media such as patchwork, etchings and oil on canvas. But now the centre would like to move to more modern forms of expression, and the organisers are looking for sponsors and graphic artists for a computer based graphic design workshop which will be held this Summer. 'We have worked with artists from lots of different places,' explains Christel, 'but never before have we organised a project involving computer artists. In the last few years computer technology has advanced at quite an amazing speed and and we feel it is the right time for a project like this to happen.'

Unusually, the workshop isn't just a chance to play with the latest and biggest toys – it's an exciting and challenging attempt to integrate the event and the technology with the life of the small fishing community that plays host to Eklisia. In Christel's own words 'The philosophy behind Eklisia is that the church acts as a crossroads of creativity for everybody, a meeting point for artists, to create and to share, and this includes the relatively new way of expression called computer art.' In practice this means the workshop will be based on a combination of photography, graphic design and image editing, with a chance to have new work printed on t-shirts which will be exhibited in the church when the project is completed.

Computer Arts will be helping coordinate and sponsor the event from the UK. We'll be keeping track of news as the project starts to happen and providing a meeting point for the technology and talent that will be involved. Because the project is non-commercial everything will be provided by donation – all the PCs, Macs, workstations, and software will have to be loaned or given for free by the UK graphics and computing industry. Artistic contributions are also welcome – Christel and Mesut would like to hear from anyone working in the field who would like to come to Turkey to take part. If you'd like to be included send a brief summary of your work with suggestions for what you would like to do at Eklisia to:

Dan Slingsby, Future Publishing Limited, 30 Monmouth Street, Bath, Avon, BA1 2BW. Tel: 01225 442244.

We'll be contacting most of the big players in the computer graphics arena for kit donation, so if you've got a product you'd like to donate, give Dan a call now. It's only with your help and support that we can make this work.

Size isn't everything

Iterated Systems, the Reading-based company that supplied video compression technology to Microsoft, Grolier and Hutchinson for their CD-ROM projects, has announced a set of tools for web users and designers. CoolFusion and Fractal Viewer are Netscape plug-ins that give users the chance to view fractal-compressed .AVIs and still images over the web without long download times. Fractal Imager is a shareware compression utility that creates images in the the new FIF (Fractal Image Format).

Iterated's patented fractal technology breaks out of the limitations of traditional pixel-based compression schemes by looking for areas of similarity within an image and encoding them into the new format. Fractal images are size independent. The same file can serve as a thumbnail and a full-screen working document, and images can be blown up indefinitely without pixellation or blockiness.

Fractal Viewer, Fractal Imager and more detailed information on CoolFusion is available on Iterated's web site at: http://www.iterated.com. Alternatively call Iterated in the UK on +44 (0)1734 880261.

Hi-Res real-time editing

Macromedia, the company behind the Director multimedia authoring suite, has announced xRes 2.0, an image editor targeted at professional designers who regularly work with high resolution images in the 20Mb to 100Mb range. xRes works with Adobe Photoshop to allow these large images to be manipulated in near real-time without unrealistic quantities of RAM or long delays.

The xRes user interface is very similar to that of Photoshop and offers a fully professional selection of painting, colour correction, and editing tools with a true multiple undo facility. xRes can also work with the new PNG, transparent GIF and progressive JPEG file formats which are used in web designs. The MOA (Macromedia Open Architecture) supports leading plug-ins and Macromedia Xtras. A PowerPC native Mac version is available now, with a Windows version due out in late March.

Pricing for existing Photoshop, Live Picture and Fractal Painter users is £186.83, which includes a copy of Kai's Power Tools 3.0 (reviewed next issue) and a selection of fonts and images. The normal price is £645.08. For more details point your web browser at the Macromedia web site at: http://www.macromedia.com. Contact Computers Unlimited on 0181 200 8282.

One of many stunning images created using xRes. The bigger the image, the easier it is to manipulate. At least that's the theory. Full review next issue.

exposure

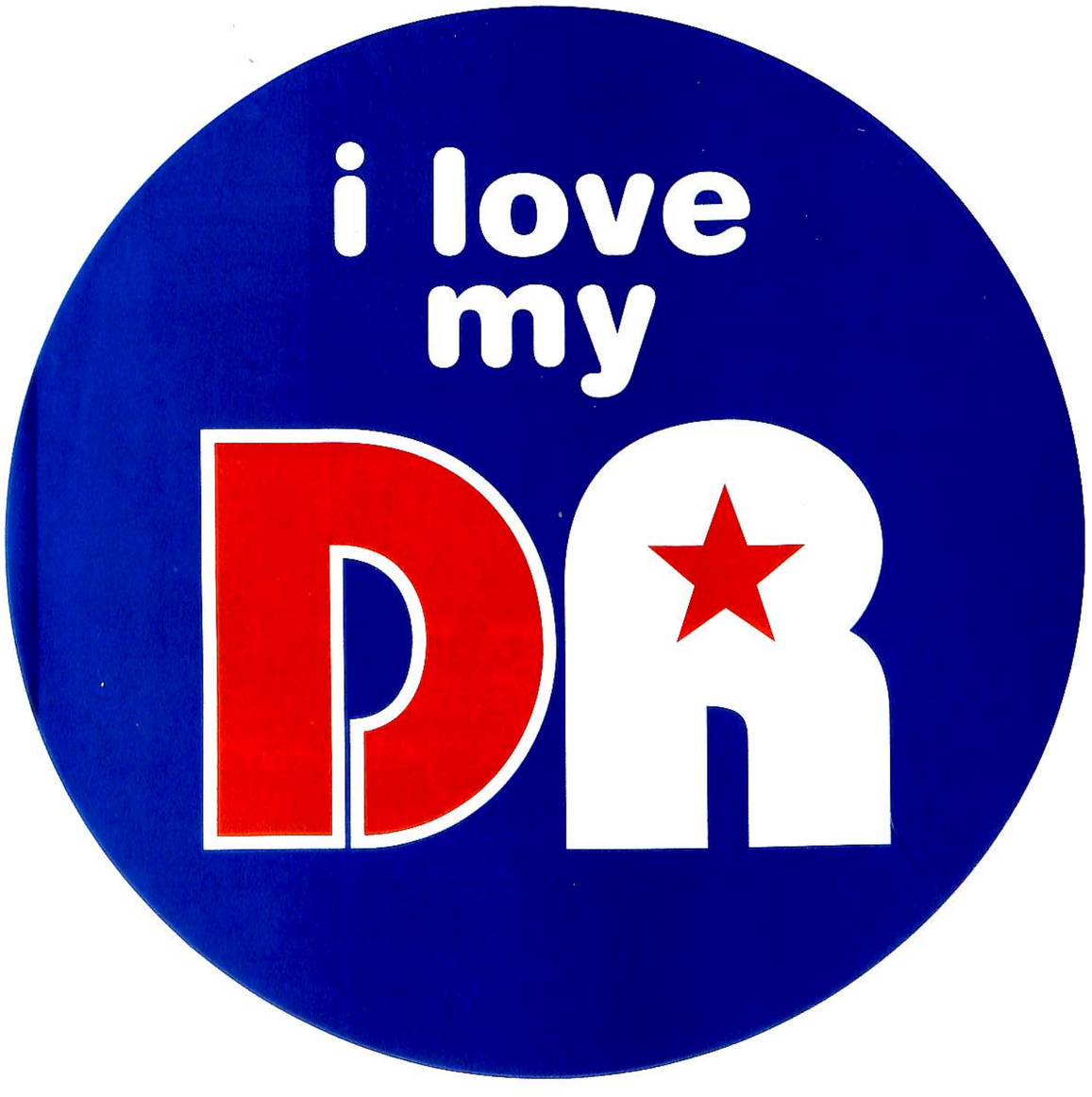
The cream of the electronic crop is on show each month in our digital gallery. Here's just a selection of what to expect.

Bit.Movie

This year's annual Bit.Movie competition, April 4-8th, promises to be one of the best yet. The organisers of the show have been inundated with entries from all over the world, produced on all types of computer. There are five categories in all which includes 2D, 3D, VRML and multimedia. Look out for a special show report and pictures of the winning entries in the next issue of Computer Arts, on sale Thursday 6th June. If you want to know more, check out Bit.Movie's website at: http://www.cli.di.unipi.it/bitmovie.

Ray Dream

The results have just been announced for Ray Dream's 4th annual Modern Masters of 3D International Art & Design Contest. The best of the electronic bunch have been printed in a special limited edition calendar. The two shown here are: Plague of Frogs by D. R. Greenlaw (right) and Easter Island Egg Hunt by Bob Ting (above). The new 96 contest has just got underway, and Ray Dream is looking for entries based on characters from your imagination. Further details and an entry form can be obtained by calling Ray Dream on 33 1 6941 9722. Alternatively, write to Ray Dream at: Ray Dream, Inc., 1804 N. Shoreline Blvd, Mountain View, CA 94043, USA. Two grand prize winners will be chosen and each will receive either a PowerMac or Pentium-based system plus software. Other placing winners will receive hardware and software prizes.



Designers **Republic**

Ian Anderson founded the Designers Republic to challenge the design establishment. Now his company is ten years old. **Dave Cook** finds out whether he has mellowed with age?

What a lovely bunch of well dressed young men they are. Why, Computer Arts would even take them home to meet their mum. If it had one.

The Designers Republic is the archetypal anti-hero of the design establishment. It has been producing a steady output of work for the music industry since 1986, its most famous work creating an unmistakable corporate identity for indie band, PWEI (Pop Will Eat Itself).

Unlike other name designers that shot to fame in the designer decade, DR's work is not too anal or too obsessively typographic. The Sheffield-based company is the antithesis of the Neville Brody school of restrained street style, and doesn't take itself too seriously, blankly refusing to move south for a nice design studio in Soho. Yet this year Designers Republic is ten years old.

Now its founder, Ian Anderson, seems established as a grand old statesman of British graphic design. He's even bringing out a book and staging a retrospective exhibition later this year. So have things changed?

'From the start the Designers Republic was a declaration of independence from the design clique,' explains Ian. 'And as long as we are outside London we will never be a part of it.'

The Designers Republic is less a graphic design company, more an ideas factory. Its work always contains a witty, prosaic touch with the aid of pithy little strap-lines such as 'I Love My Designers Republic', 'New and Used' and '100% Recycled Culture'.

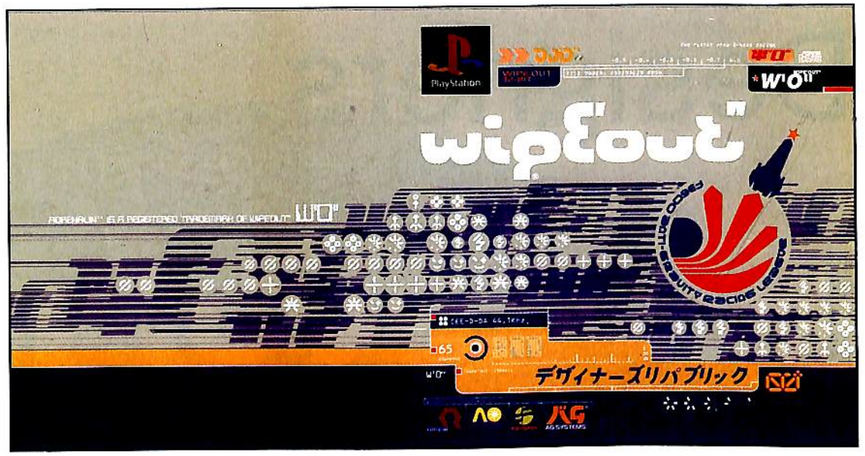
This is hardly surprising, since Ian Anderson is not the run of the mill

Above: PWEI commissioned Designers Republic for a series of record cover sleeves, advertisements and t-shirts. In fact, a complete graphic identity was built up for the band.

Left: DR mock and pervert commerical culture while making money out of it. Here's one of 20 images that the Sheffield-based company produced for a New York art show.

Above: One of a number of logos produced for The Federation, the production house behind the current Levi's Spaceman campaign. This one appears on invoices...

Above: One area in which Designers Republic excels is in the creation of bizarre and original icons for a diverse range of media.



Psygnosis commissioned a special techno soundtrack for its WipeOut computer game and wanted the game's packaging to appeal to fans of that type of music. Because of its work with techno labels, Designers Republic was the natural choice to create the artwork.

Although DR has yet to create a Web site of its own, the team has produced pages for the likes of The Shamen, PWEI and React Records.

graphic designer but is first and foremost an ideas man. In fact he had no formal design training at all. Early on he ditched his native South London for Sheffield where he read philosophy but got side tracked by the music scene.

'When I was at college, I was DJ-ing and promoting clubs. It was cheaper to do my own flyers and that got me into design. Then I went on to manage a band and did its artwork. But when the band's fortunes withered people from the music biz were still asking for artwork.' And so the Designers Republic was born.

Over the last ten years Anderson's ideas have gained the attention of the design chatterati. One of the terms coined about the Designers Republic was the phrase 'American Expressionism' because it parodied corporate logos, placing them out of context. Companies such as Pepsi, and Sony have all been plundered by Ian and his posse of designers.

At the end of the day Anderson thinks too much fuss is made about being original. 'We are all about sampling, and I like the idea that talent borrows, genius steals. If you want to tie our style down, things like consumerism, science fiction, and Japanese culture, and any kind of packaging attracts us. We love the whole Japanese thing. Blade Runner is fairly influential to us. There is a lot of Japanese iconography in that. It is the ultimate consumerist graphical style, wacky and odd packaging."

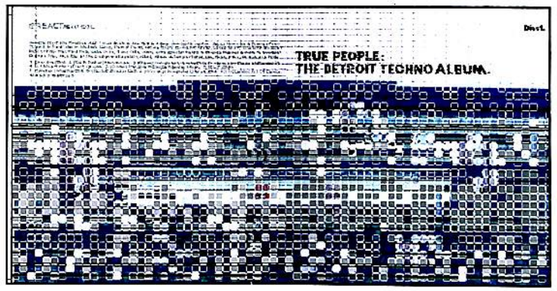
If the Designers Republic steals ideas, Anderson insists that it's dealing with shop soiled goods anyway. 'With modern graphics it's interesting to see the way that the Japanese have stolen the lot from the West, but get it slightly wrong because of cultural differences. So we are just taking it back from them. Some of the Japanese designers like Graphic Manipulator are stealing it back from us. I love that kind of confusion.'

Even the corporate colossus Sony, has suffered the piracy and parody of the Designers Republic, which has repeatedly sampled different versions of its corporate logos. Ironically, the Designers Republics' most prominent recent outing, the graphic design for the Playstation hit game WipeOut, was commissioned by the Sony Corporation subsidiary, Psygnosis.

'We find most things that we end up doing quite funny, even though we take the work seriously. But it did make us laugh, it looked like Sony were buying into a company that had been taking the piss. But in truth we used the Sony logo because it looked so good. We are the kind of people who would buy a Sony ghetto blaster or Walkman because it had the best logo, and its stuff usually looks the best too.'

But despite this irreverent laddish posturing, the Designers Republic is held in high regard and Anderson is noticed by the 'establishment'. Last November Anderson was invited to speak at Fuse 95, Berlin [*Fuse is the now famous international forum for experimental typography set up by Neville Brody*]. But isn't this all a little too serious and earnest for him?

'I have mixed feelings about Fuse,' claims Anderson. 'I think it is too big, and takes itself too seriously. I don't want to get heavy but it's not about political prisoners, war and starvation, but about what typeface you've used on a record cover. It is not a matter of great importance. I think the whole typography thing is getting blown out of all proportion. I am not slagging typography off, you just have to see it in the context of design and communication."



DR's main work comes from the music industry. As well as producing record sleeves for pop bands, DR is also heavily involved with several leading techno/dance labels.

'We have experimented and done more interesting and creative things with the Pepsi logo than it has,' claims Anderson. And he could be right....

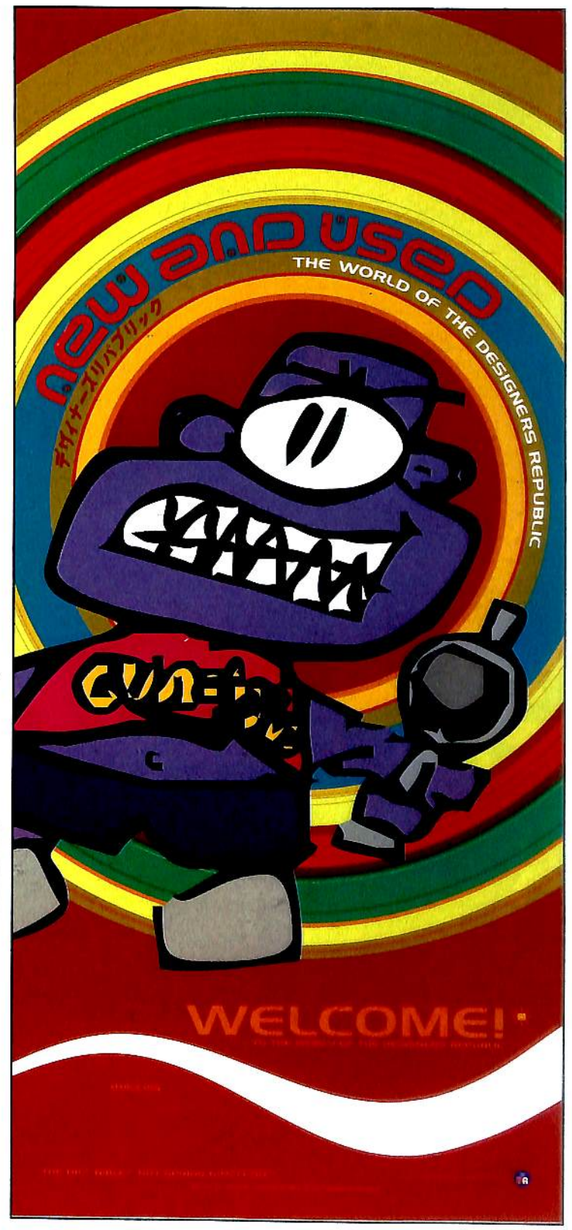
Anderson's view about the role of the computer and technology in design is also restrained. He admits that technology has enabled the company to execute more complex designs but worries about the laziness it can breed.

'We don't use 3D modelling packages to produce computer art for the sake of it. The content and the message is the most important element for us. There is a lot of computer art that fools the general public into thinking its good. But at the end of the day it is just a collection of gimmicks and filters.'

As a consequence, the staple tools in the Designers Republic armoury are Freehand and Photoshop. And, as Anderson explains, Freehand is very much at the centre of the design process. 'We started out using Illustrator, but soon realised it was the devil's tool, and switched to Freehand. When I use Illustrator, I just think it's such a cack handed way of doing things, it nearly put me off computers.'

Perhaps this is one reason for DR's success – it uses what it finds useful but refuses to get side-tracked by fashions. Anderson concedes that 'technology is a great leveller, and that with the popularity of the internet we are getting more of a global design language,' but doesn't apologise for the fact that he hasn't got around to doing a Web Page yet. 'We have just been too busy,' he claims.

Although it seems natural for the company to get more involved in computer games design, a genre that has helped it develop a distinctive style, Anderson can't hide that his real passion is for designing album covers. 'We have been approached by companies like Mindscape and Gremlin, but most of our work is for the music industry, and I guess it will stay that way. I like it like that.'



If you want to check out more work by DR, look out for 'New & Used: The World of the Designers Republic' to be published by Booth Clibborn Editions in May 96.

Electric Image

It may not be a household name yet, but Electric Image has an impressive digital portfolio. **Richard Wentk** visits one of the UK's leading computer graphics and animation houses.

'If we'd tried to model this the traditional way, we'd have ended up with something the size of Soho.'

We're at the offices of Electric Image, talking to an ebullient Paul Docherty, who heads up a team of ten animators and designers. Behind him is a rendered image of a space ship, sparkling with tiny lights and looking like the ominous offspring of a chance encounter between an oil tanker and an interplanetary marital aid. 'It's the detail that counts. There's one shot where we go right in through a window. Can you imagine getting that to work with a conventional model?'

Building starships is all in a day's work for Electric Image. Armed with the inevitable arsenal of Silicon Graphics hardware, EI is perhaps the most influential UK graphics house. Its current project is SpaceTruckers, a space comedy that's currently being shot in Ireland, and is due for general release this autumn.

'We've done film work before, but this is our first full length project,' continues Jay Williams, the movie's computer graphics producer. 'We've found that there's a really big interest in the field now, after Jurassic Park and the others, and it looks like it's about to take-off in a big way.' Although it's not widely known outside of the industry, EI has been at this game for over a decade. 'We were set up nearly fourteen years ago,' explains Docherty. 'I left the BBC to work for Molinaire, which was the original TV facilities house. We started with a 26 program series for Channel 4 called The Times Atlas of World History. With no presenter and no story, the show relied heavily on graphics and animations. We used a computer controlled rostrum camera – one of only two in the country – for some shots, and a computer that originally produced map graphics for the US elections.

'From there we got into commercials, broadcast work and pop promos. Originally I teamed up with Brian Wiseman, who did a lot of the Duran Duran videos – you know, back when pop promos still had big budgets and looked good. We also did the original ITV ident. We wanted more work like that, but the equipment just wasn't available. It wasn't a case of buying it off the shelf like it is now. So we did a deal with Bob Abel, who is *the* seminal guy in computer graphics in the US. We helped co-develop his raster imaging system and added a PAL option for Europe. We bought a Digital Vax 11 780 computer to run it on, which was about the size of a room. Everyone said it was far too powerful for graphics, which just seems laughable now.

'One problem we had was that wire-frame previews of moves had to be run to film, which took forever, and it also meant that people did very boring moves because they didn't want to take risks. So we started looking around for a way of doing previews in real time. We came across Silicon Graphics, which at the time was 60 people in a quonsett hut in Sunningvale. Its MD, a guy named Jim Clark, had been working on a research project called The Geometry Engine with government money, and as soon as he got it working he legged it and started SGI. We turned up there and did a deal where we bought the first two SGI IRIS workstations in the UK – which is a story in itself because they got stopped at customs and we had to talk them through. We hung those off the VAX and used them as terminals for the previews, which we could almost do in real time. We started to use them for a lot of TV work.

'In 86 ITV did a Christmas promotion campaign, and we used a number of ray-traced images, which was the first time anyone had used those kinds of effects in television. And we've carried on from there – the SGIs have become more powerful, we've expanded, moved, started to work in compositing as well as pure graphics, and now we're an odd hybrid – we're not a facilities house because we don't charge by the hour, but with our own MPEG and compositing facilities we can do a lot of the work they do, plus multimedia authoring too.

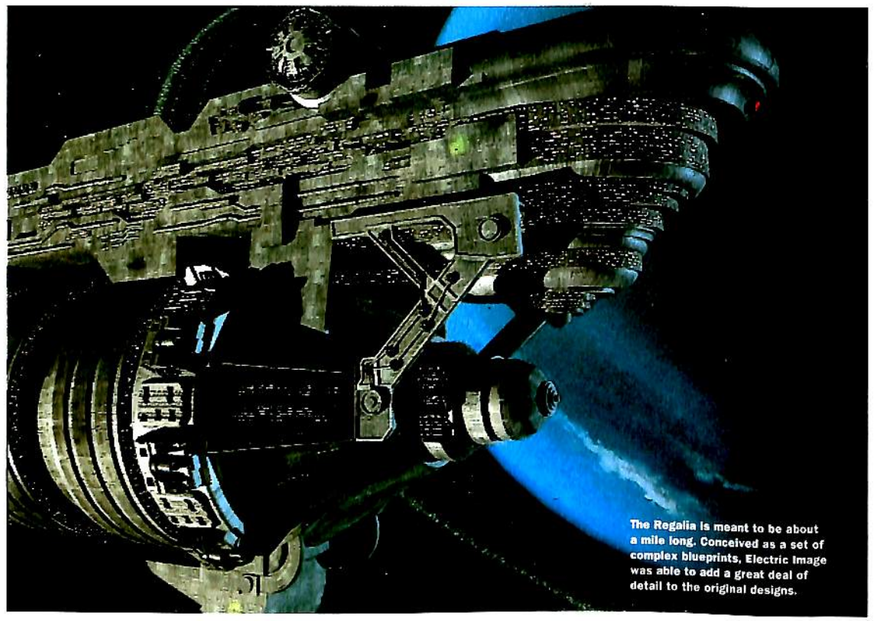
'It may seem immodest, but we really have been something of a breeding ground for talent. Ian Bird from 601FX started work here [*see Computer Arts issue one for more information on 601FX*] – he's the only person we've ever taken in straight from school, because his work was so good. We also advertised for someone 'to be the next John Lasseter' – and we eventually hired a graduate who's now in ➡

California at ILM and well on his way to emulating Lasseter's success.'

So what about the future? 'I'm sure CG is about to explode in this country,' says Jay firmly. 'On the one hand it means we can get more work done with less people. But it's also meant that we can do things no one has ever been able to do before. The UK has a reputation for excellence in the field, and we're doing everything we can to maintain that. I don't think we'll be producing true virtual actors just yet – not for another century or so – but the blend of real footage and computer animation is going to become less and less distinguishable from the real thing. Then again, it's always the animation and not the computer skills that matter. Toy Story is a great film because it has a great story, and for excellent animation you can't beat Wallace and Grommit. So the computers haven't taken over here – they're just a means to an end, and always will be.'

Electric Image can be contacted on 0171 287 8800.

Space Truckers – or how to get ahead in the movie business...



The Regalia is meant to be about a mile long. Conceived as a set of complex blueprints, Electric Image was able to add a great deal of detail to the original designs.

Zero gravity shots, such as floating blobs of blood, were one of the hardest digital effects to pull off.

'We got involved through the special effects supervisor Brian Johnson – he's worked on Alien and The Empire Strikes Back,' explains Jay. 'He invited us to look at the script, and from that we put together a presentation and got the project. We were lucky enough to get involved in the build-up, so we were able to add some design input. It was decided that we would tackle The Regalia – the pirate space ship. It would have been colossal as a miniature – about the size of Soho probably – so we modelled it on the SGIs. We're also doing a lot of the post-production, especially the digital compositing. The rest of the post-production is at Goldcrest, which happens to be next door to us. That's ideal, as we have the director on hand to make comments and suggestions right away. Before that we were sending rushes over to Ireland using an ISDN link – the first time we've done that, and it's worked brilliantly.

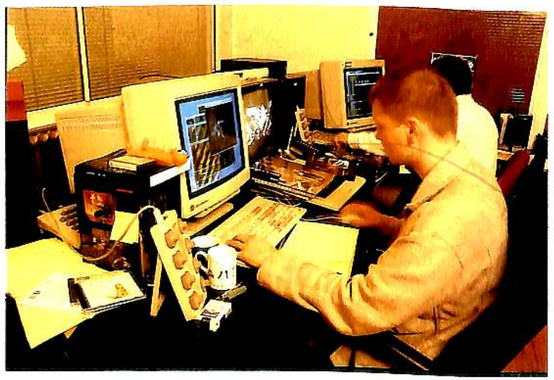
'The film itself is an Irish/American production, directed and produced by Stuart Gordon who was involved in Honey, I Shrunk The Kids and Honey, I Blew Up The Kids for Disney. The writer is Tad Mann, who worked on the National Lampoon films. It's a comedy. It has Dennis Hopper driving a space ship in a blue denim shirt, and Charles Dance as the obligatory evil English genius trying to take over the world – it's fun. At least, if it isn't fun, we've all blown it...'

(Far left) A series of space beacons disappears into the distance – another special effects shot courtesy of Electric Image.
(Middle and right) Original live action or miniature material was digitally scanned at high resolution. The components of the scene were then composited and scanned back out to the 35mm anamorphic Widescreen ratio. An ISDN line was set up between London and Dublin so that the film's producers could view the effects as and when they were finished.

So you want to work in computer graphics?

With an impressive list of previous employees, and an even more impressive list of credits, Electric Image attracts a great number of graphics and animation wannabes. So what do Paul and Jay look for when they're deciding whether to find out more about someone's work?

'Firstly, a good walk cycle – drawn by hand, even – says far more about someone's abilities than loads of rendered work,' explains Paul. 'It's the animation that matters, not the computer skills. It's easy to use a computer to make a walking figure, but most people use spline curves, and the result just yells 'spline!'. We want people who are talented enough to understand that's not good enough, and have fought the computer to do what they want – and won! Now that software is getting easier to use – we don't have to write it ourselves any more – we can teach anyone the computer skills. So it's raw talent that counts, and creativity, not necessarily a fully rendered show reel produced in 3D Studio.'



Left: Paul Docherty in a somewhat reflective mood. Above: The team hard at work on their battery of networked SGI machines.

But according to Jay, there's something even more important that prospective professionals should keep in mind. 'One problem with the arts schools at present is that they sort of instill this feeling that once you get out there in the real world you'll be paid lots of money to realise your vision. It doesn't work like that. In commercial animation we're always working for someone – the director, the advertising company, whoever – and at the end of the day if they say "It's great – but it's not what we're looking for" you have to be able to deal with it. It's about working with other people. What makes a great director is someone who gets the best from people, and only a handful of colleges – I think Bournemouth is one of them – get people to do group projects. I think that's essential if you want to work in this field.

'That and you have to be crazy,' adds Paul. 'If someone is overdoing it, we will send them home. But sometimes the deadlines just pile in, and you have to meet them. It's exciting work, but it's really tough sometimes.'

But is the industry hiring or firing? 'Oh, definitely hiring,' says Paul firmly. 'I think we're about due for an animation renaissance now – not just computers, but all kinds of work. The UK film industry seems to be picking up, and there's a lot of work out there for talented people.'

Space Truckers is the first major feature work for Electric Image. Previously the company was involved in creating title sequences and commercials.

Reboot

Long before Toy Story hit the silver screen, Mainframe Studios' computer-generated cartoon series, Reboot, was taking the digital world by storm. **James Binns** got the gospel on its amazing 3D graphics.

Mainframe Studios has a gorgeous office in downtown Vancouver. With more Silicon Graphics workstations and AVID editing suites than is truly decent, the atmosphere is one of high technology and creativity. These are the studios from whence the bizarre digital world of Reboot is created. But isn't it a bit of a short cut setting a computer-generated series inside a computer?

Not so, according to Producer Phil Mitchell. As he explains: 'We could have used stop-motion techniques, but it just wouldn't have looked right. The computer-generated graphics are the perfect match for the comp-uterised world of Reboot.' The concept for the series has its roots in, among other things, Dire Straits' Money For Nothing pop promo of the early 80s – the one with the animated removal men. The primitive blocky shapes gave animation gurus Ian Pearson and Gavin Blair the idea that they could actually create something funny using digital techniques. It was years before Reboot became a reality, but the Dire Straits video is at the top of Reboot's digital family tree.

Sitting through an episode of Reboot it's easy to think that the characters, with their cheeky grins and larger- than-life personalities are, in fact, based on real people. Indeed, the first element in designing a new character is defining the character's personal characteristics. Then the designers tailor the look to suit. Mitchell is at pains to point out that 'It's not the other way 'round. We don't say "Hey this is cool!", find some crazy image and then fit a story around it.' As for vibrancy and expression most of that originates with the performances of the artists who provide their voices – a good performance helps the animator no end. Mitchell went as far as to say that 'It's the actors who help us get the best performance out of the animators.' As for conveying emotions graphically the most important part of the face is the eyes. Pretty obvious, as you look people in the eyes when they're talking to you... and not the mouth.

The images themselves are mostly generated using Softimage, the back bone of the animation and graphics sys-

➡

Bob and his computerised dog get ready for battle against the User's henchmen.

Realistic character animation differentiates Reboot from the usual morning 'toon fare.

The digital sets are only part of the equation, however, and are certainly not the show's only selling point. Humour is an essential ingredient as you can tell from this Village People skit.

Reboot is the world's first 100 per cent computer-animated series, telling the story of Bob, Dot and Enzo, 3D characters living in the city of Mainframe. Now in its second season, the show is hugely popular in the USA and is even a hit over here.

tem. All characters are designed as meshes with separate models for facial close-ups. Using a standard set of heads, patches are employed depending on how close the virtual camera wants to zoom in. Each lead character's head has a mass of layers to make them work effectively. Expression sets are built into them, enabling animators to chose from a selection of ready-made heads for different expressions. So rather than just manipulating the corners of a mouth to make a character appear happy, you simply pull the happy head out. Simple, eh?

The production schedule for Reboot is astonishing, especially when you see the quality of the rendering. Mainframe produce two shows simultaneously in under eight weeks from start to finish. With each episode containing some 21 minutes of new footage, that's a pretty breathtaking achievement. The studio claims that with a full crew doing just one show, it could get a whole episode out in less than three weeks.

Like any TV sitcom the production process begins with the script. Scribbling types swan around and write the dialogue which is then turned into a fully-fledged script with stage direction and detailed descriptions for each scene.

The next stage is to record all the voices. This is done before work has started on the animation because human voices are less flexible than SoftImage. A recording session gathers together as many of the actors as possible, so they can all interact with each other. Audio is then taken back to the studio on DATs and loaded into one of seven AVID editing suites. As Phil explains: 'We set about slugging through it, cutting it up into relevant chunks to get the feel of pace and timing for the show.'

Work then begins on the storyboard, setting up direction, and matching up scenes to the audio. Just as it's fascinating to know the production technique employed by your favourite writer (As in 'Do you use a Biro or a word processor?'), the commitment to digital techniques at Mainframe Studios is also revealing. The only time they do rough sketches at the studios is when planning out camera positions and staging for shots; most of the storyboarding is done on computer. 'We're not quite paperless yet, but we're getting there,' explains Mitchell. 'We still have large white boards in every animation suite, so we can scribble stuff down.'

When the storyboard's completed, the crayons are wheeled out and the director starts assigning scenes to teams of animators. Working in groups of three or four staff, the senior animator on the team will take the scene, comprising maybe 20 cuts, and split it amongst his or her team. The first animations that are completed are lip sync and facial expressions. Even at this early stage these are dropped back into the AVID for lip sync tests so that they can check how it's working against the sound. Finally, work begins on the animated sequences. This process continues until each animation meets final approval and is then rendered out as a final sequence. Rendering the moving characters is processor intensive, but if the background isn't moving it can be just dropped back in at the end.

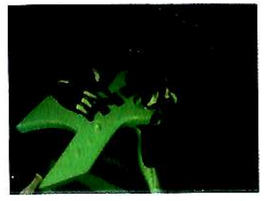
The approved animations are then assigned time codes with the final sequence assembled on an AVID suite rather than a Silicon Graphics workstation. At the same time as the final assembly is being carried out, Mainframe's in-house musician is composing the music. Having music composed specifically for each show means that the score can hit musical cues in the storyline. The sound effects are designed out of house in a studio just around the corner in Vancouver. And that's about it. The whole shebang is welded together on an AVID and then viewed first in a viewing room on a massive projection screen and next on televisions across the world.

One area that Reboot keeps its purity is in the production team's obsession to keep everything digital. Real life images or video are never used. 'We've tried to steer clear of real world influences. Introducing live video characters into Reboot would cause a loss of focus. Why dilute Reboot when there's enough to explore without adding complications? We can do that kind of stuff in other shows. We're just having fun pushing state- of-the-art animation techniques.'

For all its technological wonder however it's important to remember that Reboot is designed as entertainment. It's not a show about graphics engines and rendering. It's about a group of friends who just happen to live in a computer... and which just happens to be funny. Last word to Phil Mitchell: 'People have gone to see Toy Story and enjoyed it as a film, not just a piece of clever animation. And we don't do Reboot to show how clever we can be with a computer. It's all about entertainment.'

With 21 minutes of footage to produce every few weeks, rendering time is obviously of concern. 'The Softimage renderer is really pretty quick and with their mental ray renderer, it looks like they will stay ahead of the competition in terms of photorealistic and custom rendering.'

Mainframe Studios can be contacted on 001 604 681 3595. Fax number: 001 604 681 3517.



Guitar heroes don't come much stranger than this. Then again, look at Radiohead...

Forget all the hype about Pixar's and Disney's hit computer animated movie, Toy Story. Long before John Lasseter's digital masterpiece was born, Mainframe Studios was hard at work on Reboot.

Path animation and inverse kinematics were used to endow characters with fluid motion.

TV Times

If you want to check out the adventures of Reboot and his computer-generated chums as they thrash around Mainframe, play computer games and engage in a uniquely digital lifestyle, tune your dial to ITV, 4.40pm on Thursday afternoons.

QuarkXPress 3.32

QuarkXPress has just been updated to Windows 95 but it still costs more than PageMaker 6.0 and does less... but does it do it better? **Rod Lawton** finds out.

Both QuarkXPress and PageMaker are designed for producing full-colour, top-quality newsstand magazines. And although PageMaker is the leading DTP application in the PC market, XPress dominates the Apple Mac publishing world.

From printed results, though, it would be extremely hard to work out which application had been used. Neither program is cheap, but XPress has a truly terrifying price-tag. Can it possibly be worth it? It's not just the cost that sets XPress and PageMaker apart, either – it's the way they go about creating pages that makes them so very different. PageMaker uses a free-form approach that appeals to designers. It makes it easy to assemble the graphical building blocks of layouts quickly and intuitively. Pictures can be placed on the page quickly and easily and moved around at will, making it easy to concentrate on broad design before getting involved in the details.

QuarkXPress is different. Every graphic has to go into a pre-drawn box, and all text has to be imported into pre-created text boxes. Creating pages feels much more pre-meditated and structured, even though it offers the same flexibility as its rival.

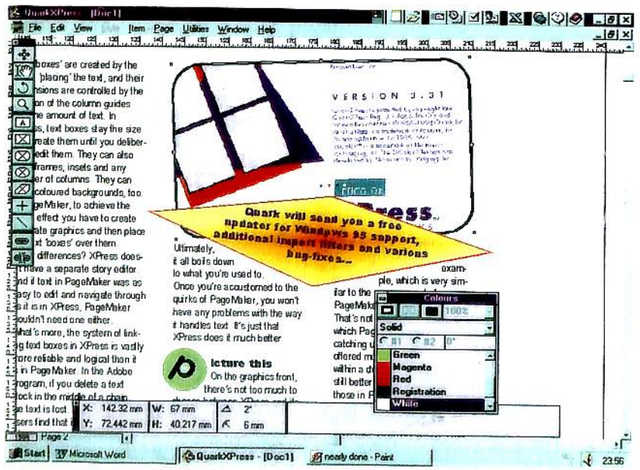
On the other hand, though, while XPress isn't always the favourite of designers, it's popular with sub-editors. Why? Because it makes PageMaker feel quirky and unreliable. In PageMaker, text is flowed between column guides. Text 'boxes' are created by the act of 'placing' the text, and their dimensions are controlled by the position of the column guides and the amount of text. In XPress, text boxes stay the size you create them until you deliberately edit them. They can also have frames, insets and any number of columns. They can have coloured backgrounds, too. In PageMaker, to achieve the same effect you have to create separate graphics and then place the text 'boxes' on top of them.

Other differences? XPress doesn't have a separate story editor. And if text in PageMaker was as easy to edit and navigate through as it is in XPress, PageMaker wouldn't need one either.

What's more, the system of linking text boxes in XPress is vastly more reliable and logical. In the Adobe program, if you delete a text block in the middle of a chain, the text is lost. QuarkXPress users find that incredible – and so it is.

This is all rather paradoxical because, in other ways, PageMaker supports text-handling very well. It includes indexing and table-of-contents collation, whereas QuarkXPress doesn't. Ultimately, though, it all boils down to what you're used to.

XPress's apparently 'regimented' system of guides and boxes is deceptive – it's capable of any design effect you could need once you know how to use it.



Picture this

On the graphics front, there's not too much to choose between XPress and its leading rival. Both can handle a vast array of picture formats – XPress can import bitmaps, PCX and GIF files, Windows Metafiles, TIFFS, EPSs, Mac PICT files, JPEGs and PhotoCD images – and while it doesn't have PageMaker 6.0's ability to apply Photoshop effects to imported graphics, and likewise modify PhotoCD pictures, few serious designers won't have Photoshop or an equivalent package to do that beforehand anyway.

Again, the big differences are not in what these programs do, but how they do it. Creating an irregular runaround in PageMaker is easy – you add or delete 'handles' and drag them into the required outline. In XPress you simply convert your picture box into an irregular polygon and do the same with the polygon handles. XPress's picture box shapes can also be used to achieve the effects made possible by PageMaker's masking functions.

This happens across the whole feature list. Sometimes you think you've spotted a gap in one program's armoury only to realise it fills it in a different way. Indeed, comparing features can be futile because, like PageMaker, XPress has an extensible architecture. There's a big supply of third-party 'plugs-ins' to extend its capabilities, and although the software may not do what you want 'straight out of the box', someone, somewhere will produce an extension to make it possible. However, XPress extensions, like the software itself, are not necessarily cheap. Some – outrageously – can cost as much as XPress itself.

In many ways, PageMaker and XPress are converging (cynics would argue that PageMaker is doing all the 'converging'). XPress has long had a 'measurements' palette, for example, which is very similar to the one now part of PageMaker. And that's not the only respect in which PageMaker is belatedly catching up. XPress has always offered multiple master pages within a document, and they're still better implemented than those in PageMaker 6.0. In XPress, master page items are 'optional' – you can delete them from your document pages. (You can even 're-apply' them later by dragging the appropriate master page icon onto the document page in the document layout palette.) No such flexibility with PageMaker.

In fact, although XPress's more rigid approach to page design tends to get in the way initially, it lends itself very well to grid-based publications, like newsstand magazines, where consistency from one page to the next and from one issue to the next is important. It also makes it easy for less experienced designers and even sub-editors to produce competent pages.

Ultimately, though, there is one respect in which the Quark product clearly outshines its Adobe rival – efficiency. It uses much less hard disk space, much less RAM and feels generally quicker and crisper to use. PageMaker seems positively bloated by comparison.

For professional DTP you need advanced typographical control. XPress lets you adjust the kerning (spacing) between each pair of letters – important when using type at large sizes for headings.

XPress has made up ground on PageMaker in another important respect – it's now enhanced for Windows 95 (existing 3.31 users get a free updater kit from Quark), and the benefits include 3D dialog boxes and other interface changes. At the same time, the Word and WordPerfect import filters are enhanced and around ten 'undocumented features' in the previous version are fixed.

But these changes are comparatively minor compared to what we can expect in the next major upgrade – version 4.0. The new release will include index and table of contents generation, additional character-based style sheets and integration with Quark's new Immedia and Xposure electronic publishing and image manipulation programs.

It looks like Quark is now playing the copy-cat game. Immedia and Xposure look like serious rivals for Adobe's clever Acrobat software and its mighty Photoshop...

★★★★☆

Price £1051.63
Company Xchange
Telephone 0171 637 2966

Minimum system: *4Mb; 386; VGA; Windows 3.1; hard disk (6Mb)*
Recommended system: 8Mb; 386/486; SVGA; Windows 3.1; hard disk (6Mb+)

The Bottom Line

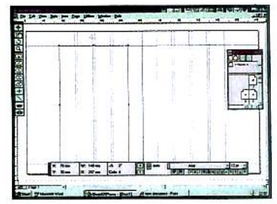
"Historically, PageMaker is the leading professional DTP application on the PC. XPress faces an uphill struggle because of its cost and unfamiliarity. On paper, PageMaker wins by a mile. In use, it's an awful lot closer. XPress is an expensive precision tool – as with any precision tool, you resent the cost, and you can't see what you're paying for, but you can't deny it makes the job easier. And things may look different again when XPress 4.0 comes out, together with Quark's own integrated image-editing and electronic document publishing applications. Maybe Adobe's grip on DTP technology is beginning to slip."

Rod Lawton

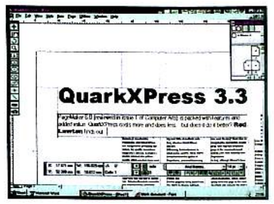
Page layout in QuarkXpress

Once you know how it works, page layout in QuarkXPress is simplicity itself. Let's see how the page you're reading might be built up...

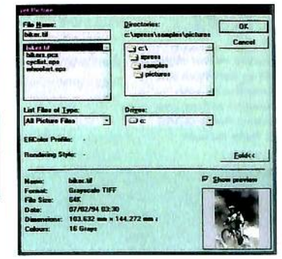
1 Your first job is to create a new document. For this, you'll need to know the page dimensions. You can also set up your master guides (margins) and an automatic text box for each page, complete with the number of columns you want. You can also have 'facing pages', where one master page has left- or right-sided versions.



2 And here's your blank page, ready for you to start importing text and graphics. The column and margin guides are more obtrusive in XPress than PageMaker, but you can elect to hide them. Nevertheless, XPress still gives the feeling of a very ordered, structured environment and many feel it's a creative constraint.

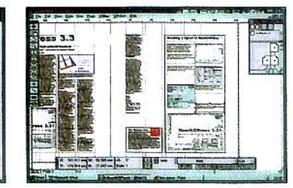


3 Everything in XPress is based around boxes. You import/copy text into boxes and you put pictures into boxes. Once text is in a box, it's safe (none of PageMaker's quirky box-linking antics). Overflowing text is marked with a symbol and you can 'chain' text boxes together, modifying the links at will. If the master page contains an automatic text box, you can set the document to add pages until all the text in a long file has been imported.



4 XPress can import a huge range of picture formats, from bit-maps to EPSs to Metafiles. You can also opt to check their dimensions and specifications before you import them. Picture boxes can be circular, rectangular, round-cornered and even made out of irregular polygons. Cropping is easy, and there are neat keyboard shortcuts to fit an image perfectly to a box, fit the image while maintaining its aspect ratio, and enlarge the box while preserving that aspect ratio.

5 XPress text boxes can have insets, borders, any number of columns, different types of alignment, background colours... there's usually no need to put background graphics behind text to achieve colourful effects. Text boxes can also be transparent, which makes it easy to place caption text on top of pictures, for example.



6 And here is our article nearing completion. There are a few more screen shots to be imported, some sub-editing and some alignment needed, but the basic structure is there. All the text is in secure containers (boxes) and once in place can be edited and moved about much more freely than in PageMaker. QuarkXPress is the application used to design Computer Arts, and all other Future Publishing magazines. Why? Because it's reliable, efficient and an industry standard.

Painter 4.0

If you're looking for a program that bridges the gap between 'real' art tools and digital ones, there's only one serious contender. **Mat Broomfield** props up his easel and paints a thousand words.

Whilst computers have ushered in a whole new medium of creative expression, many classically trained artists crave the hands-on feel of real pencils, charcoals, paints or whatever. You won't be getting chalk dust on your hands with Painter 4.0, but the program is as close as you can get to the real thing.

It's known as a 'natural media program' and comes with a comprehensive selection of tools, supplies and artistic materials that mimic the properties of real world tools.

Therefore, a piece of chalk is rough and crumbly; watercolours blend, wash and eventually dry; wax crayons bring out the texture of the paper and light reflects off the edge of thick oil paint strokes.

Previous versions only provided you with the ability to draw freehand. There was a line tool, but that was the extent of the program's nod towards creating geometric shapes. There always seemed to be some kind of snooty 'real artists don't use pre-drawn shapes' attitude, which thankfully has started to disappear. Fractal Design makes much of this version's ability to use 'smart-shapes'. These are squares, rectangles, circles and ovals which are drawn as vector objects and which offer you the high resolution benefits of that technology, whilst combining the flexibility of a bit-map paint program.

These shapes are particularly useful because the program treats them as 'floaters'. Floaters is Fractal's proprietary name for selections which float above the surface of the paper, and which can be layered and repositioned ad-infinitum. Far more important than its own limited shape creation tools is Painter's ability to import and edit objects created in programs such as Illustrator, Corel Draw and Freehand. Once these objects are imported, they too become floaters and can be layered any way you like. Because you can paint on top of floaters, the program provides a unique merging between the features of vector and bit-map based graphics packages. This enables you to utilise the resolution and precision of vector programs, whilst retaining the spontaneity and organic qualities of the paint program. Better yet, imported shapes can be assigned their own translucency properties and all vector objects, whether drawn or imported, are automatically anti-aliased to eliminate that hard-edged look. However, this does slow the program down.

As long as you save your work in Painter's RIFF format, all floaters remain afloat when you next load the image. If you save it in any other format, they'll be merged with the background and will become bit-mapped.

Coincidentally, when it comes to printing, whether shapes are treated as bit-maps or vectors depends upon what else in the image they're touching. This can be very inconvenient, because it means that you have to carefully plan the layout of an image if you want to see your work output at maximum resolution.

Painter has always had powerful and unusual fill tools, and that part of it has been extended further. It provides superb graduated fills, as well as the ability to literally 'weave' your own fabric fill. In fact, a whole range of genuine Scottish tartan clan weaves are already included. The latest addition to these tools comes in the form of the pattern fill. This is a tool which will fill the current selection using one of several predefined and repeating patterns. You can specify the way the pattern repeats and its scale. This feature is designed to make it easier to generate attractive backgrounds for your Internet Web pages. It does help, but it isn't as revolutionary as Fractal wants you to think.

The program directly supports pressure sensitivity, and the effect as you press harder with a graphics pen varies depending upon the tool you're using – in some cases the line thickness or density increases, whilst in others, it changes colour.

So far, I've simply used the term 'tools' to refer to items which are used to make an impression on the paper: pens, pencils, air brushes and so forth. But the beauty of using the computer is that you can do things that are quite impossible in the real world. Cutting, copying, erasing, masking, colour balancing and much more awaits you at the click of a mouse button.

Although Painter isn't designed for image processing or photo retouching, it does come with numerous tools to perform those functions. Key to all of these, is the ease with which you can define areas to be processed. You can hand-draw masks or selections, or you can use one of the many automatic options. My favourite is the magic wand which can be used to select areas of contiguous colour, based upon your tonal definition. For instance, you could select a single shade of blue, or everything with the slightest hint of blue to it, or you could widen the net still further.

Once you've made a selection, you'll discover a generous range of filters and effects which can be performed upon it. These include colour balancing and hue adjustment options as well as more exciting items such as marblising and auto-Van Gogh. The program can also use standard Photoshop plug-ins.

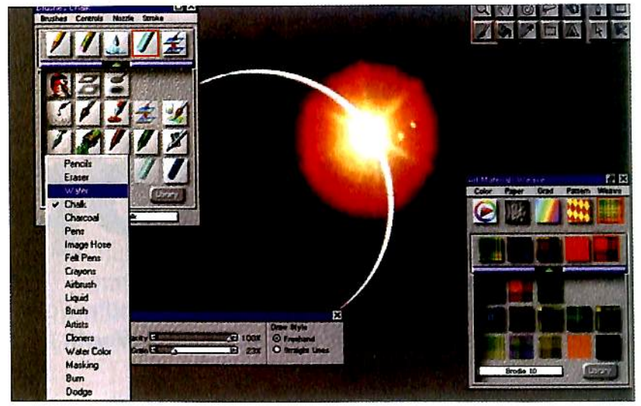
Another great innovation is a feature called Net Painter. This is aimed squarely at the professional market and enables multiple users to work on the same image in real time. You can be connected via any kind of network, including simple modem to modem links.

★★★★★

Price £468.83
Telephone 0181 200 8282

Minimum system: *8Mb (12Mb Windows 95); 486; VGA; Windows 3.1; Hard drive(21Mb), CD-ROM*
Recommended system: *16Mb; 486DX4; S-VGA*

Imported vector objects, such as this tiger, are automatically anti-aliased to soften their outlines. You can still edit them though.



Here you can see just a small selection of Painter's huge range of natural media tools.

The Bottom Line

"Painter has always been a magnificent program, and this latest version only re-affirms its superiority. In fact, it has no direct rivals, although there are areas of slight convergence with other programs. Version 4.0 definitely takes a huge leap towards the professional end of the market, yet the program's interface is as friendly and useable as it ever was. Its ability to import vector objects, and its handling of them, is most impressive. It's a pity that its own vector tools are still so feeble, though.

That quibble aside, Painter is a work of art in itself and, for the creative community, it's an inspiration."

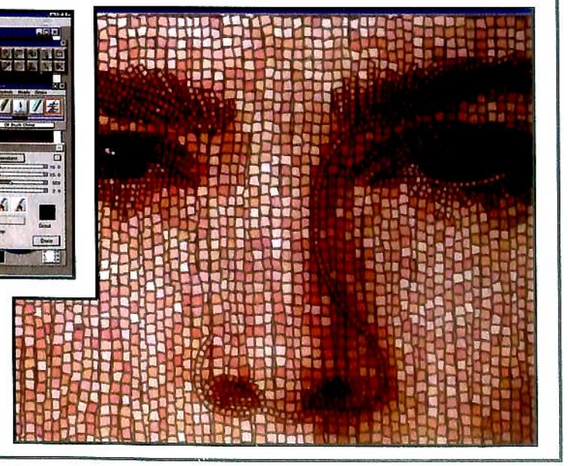
Mat Broomfield

Mystic Mosaic

Painter 4 contains a host of new features, but one of the most interesting is the mosaic tool. Superficially, this appears to be nothing more than a mosaic filter, taking existing images and overlaying a kind of crazy paving effect. However, it's far more than that, for it provides you with numerous tools for determining the shape, orientation and surface properties of each tile.

The real beauty of the program is that every operation is undoable. Tiles can be picked up, repositioned, resized or recoloured as the whim takes you. If you load an image and don't like the look of it, change it until you do. Of course, like all instantly recognisable special effects or filters, mosaic will need to be used sparingly if you're to avoid stereotyping your own work.

One of the most impressive new features is the mosaic tool, which we're using in clone mode here to 'tile-ify' a face.



And here's the finished product, which took about 20 minutes to create.

Software Audio Workshop Plus

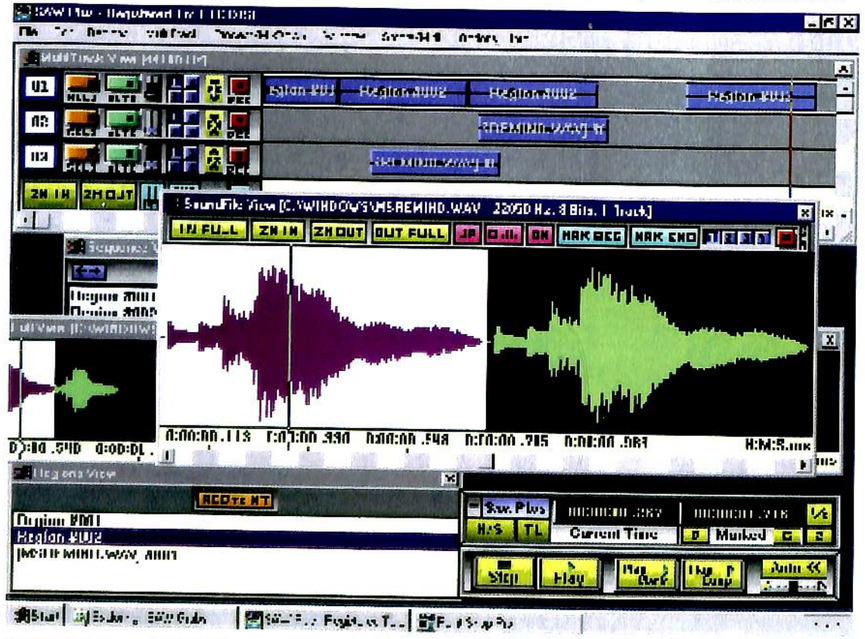
Take one Pentium PC and a copy of Software Audio Workshop Plus and you've got a complete digital recording and editing studio. **Richard Wentk** finds out if it actually cuts the aural mustard.

Software Audio Workshop – known to most people as SAW – brought affordable digital audio editing to the PC. For the first time anyone with a PC, a soundcard and a copy of the SAW software could blend, fade, record and edit digital audio with all the freedom of a full featured professional audio workstation costing at least ten times as much.

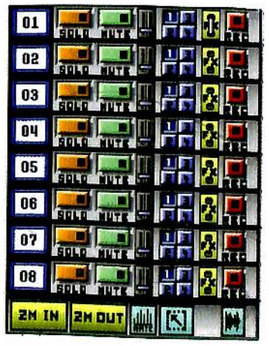
SAW had its limitations, but many of them have been removed in this latest 'Plus' version. The specifications are extremely impressive. With a fast PC and an even faster hard disk – 7200rpm SCSI devices are recommended – it's possible to work with up to 16 stereo tracks simultaneously. Each track can have a collection of effects applied to it, such as digital delay, graphic equalisation, and compression. And, of course, because the system is digital it's possible to bounce a selection of tracks down to a single stereo pair with no loss of quality, freeing up the package for yet more tracks.

But all this power places a heavy demand on the hardware. To get anything at all from SAW Plus, you need a Pentium processor, 16Mb of RAM, a 1Mb/s hard drive and a monitor that can comfortably display a resolution of at least 800x600. This will give you just enough power to work with a couple of stereo tracks. For best results you'll need a 17" 1024x768 monitor, a P166 processor, 32Mb of RAM and the fastest SCSI disk system money can buy. Even a Gateway P133 could only manage four stereo tracks before running out of steam. Its 4Mb/s hard disk isn't quite the fastest possible, but it's no slouch by the standards of a typical PC. Clearly if you want to take full advantage of all the features of SAW Plus you can expect a hefty hardware bill, most of which will go on a fast, large, high performance SCSI disk system

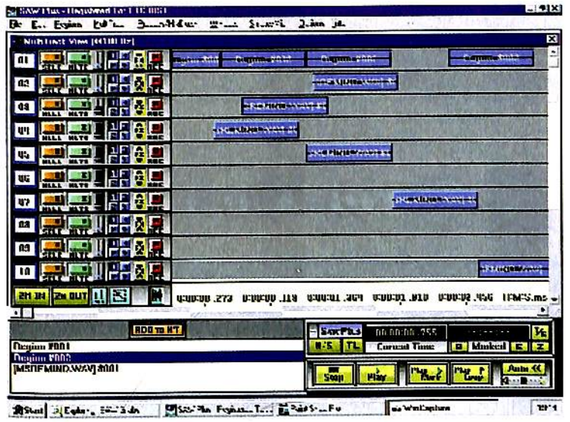
Even with the most basic hardware, getting audio into and out of SAW is surprisingly easy. The package supports up to four stereo sound cards simultaneously, which means that up to four stereo audio outputs can be fed to a mixer for further processing.



Although SAW Plus works within Windows, many parts of the package were written in machine code for speed. Even the different edit and display windows include custom code.



Each channel has the same kinds of facilities as you'd find on a professional mixing desk.



Musician friendly graphics are featured throughout. Each track has its own fader graphic. which works just like a real fader on a mixing desk, except that it can easily be automated.

It will work with any Windows MME compliant card, including digital only designs such as the Digital CardD. This is important, as it means you can connect DAT machines and digital mixers straight to your PC and back again, bypassing the relatively poor recording and playback quality of typical consumer soundcards. Once the hardware has been setup – there's no plug and play support so users will need to know their interrupts and their DMA channels – SAW Plus works just like any other Windows sound recorder. You can record, play and chop up sounds, then overdub them on top of each other. Most edits are non-destructive, so it's possible to create a full mix, complete with fades, effects and panning information without losing the original recorded data.

SAW Plus represents the state of the art in PC audio recording today. It's quick and easy, if not quite painless to use, it has enough features for professional work, and it's very affordable. The learning curve is moderate, but the hardware demands are high. That aside, it's easily the best package of its kind on the market today.

★★★★☆

Price £799
Company Et Cetera
Telephone 01706 228039

Minimum system: *16Mb; P90, 800x600 256 colours; 540Mb hard disk; Windows 3.1; Windows MME compliant sound card*

The Bottom Line

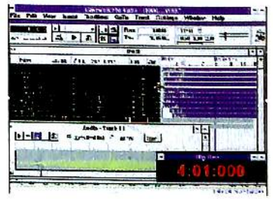
"SAW is strictly a professional package. Although it demands a lot from a PC's hardware, the price of a full-spec system still compares very favourably with other digital audio solutions. And it does more than most. Building a completely digital home studio has never been easier, or more affordable. But remember, you will need a very high spec PC to run the software effectively."

Richard Wentk

Cakewalk Pro Audio

Coming in at just under half the price of its nearest competitor, Pro Audio looks set to shake up the MIDI sequencer market. **Richard Wentk** puts it through its paces.

DOS has a lot to answer for. Most music packages were originally written for the Windows environment, but the original version of Cakewalk was a DOS-based MIDI sequencer. To some extent this latest version still bears traces of that legacy. It's a busy program, that needs lots of mouse clicks, menu options and obscure key sequences to get anything done. It's not as streamlined or slick as some, but it is powerful. Wth full notation facilities backing up all the usual MIDI editing features it will almost do everything you could reasonably ask of it.



With MIDI, audio, notation and plenty of editing features Cakewalk Audio Pro is a surprisingly competitive addition to the market.

And this new version can pull .WAV files off a hard disk and play them in perfect time with a MIDI sequencer. Unlike the competition, it's not an over-blown and expensive piece of flabware packed with features that most people never understand, never mind use. And it's not a bargain-basement cut-down product with just the basics and nothing more.

For the price, Pro Audio gets it almost exactly right. There's plenty here to please anyone who has wanted to work with audio but never been able to afford to, including non-destructive editing and the ability to pull a groove off a drum loop and apply it to a MIDI sequence – or vice versa.

★★★☆☆

Price £339
Company Et Cetera
Telephone 01706 228039

Minimum system: *4Mb; fast 386; Windows 3.1, hard disk*
Recommended system: *16Mb; 486 DX2/66; Windows 3.1; fast hard disk*

The Bottom Line

"This latest version of the Cakewalk series is a powerful and mature package. It's a tad less easy to use than it could be, but anyone with the patience to master it will be rewarded with a powerful audio and MIDI editing system. It doesn't do everything – but it does do *everything you need*. Perfect for the home music enthusiast who is short on cash, but big on ideas."

Richard Wentk

updates

Dabbler 2

There are plenty of programs around to help you retouch photos or draw vector images, but there are only a few decent natural media programs. Without doubt, the best example is Fractal Design Painter 4, but it costs the best part of £500. Dabbler is the home version, and it's aimed directly at would-be artists.

The first version included a comprehensive tutorial book, and a couple of animated demos showing you how to use the program's various tools. Version 2.0 elevates the on-line idea to another dimension, giving many more demos and superb animated tutorials.

Dabbler is very much a cut-down version of Painter, and it includes many of the same excellent natural media tools found in the more professional program. The complicated retouching and image processing features are gone, as are most of the masking and advanced fill options. What's left is a lean, yet useable piece of software that provides you with a varied selection of tools, which are perfect for exploring the natural media concept without being overwhelmed by it.

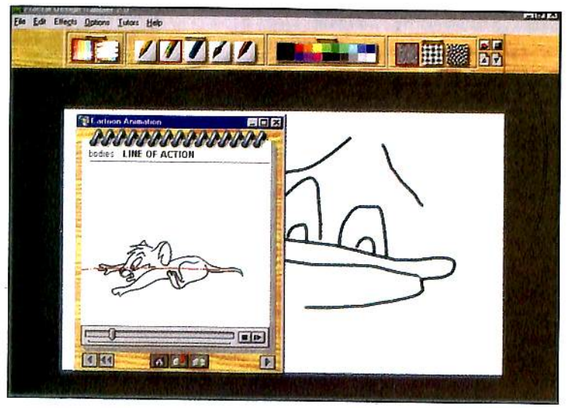
The user-interface has been carefully crafted to simulate an artist's tool chest, with 'wooden' drawers opening to reveal supplies and tools.

However, the best bit of the program is the on-line assistance and examples. Because Dabbler is now supplied on CD, there's enough space to give you some first rate demos. The program offers flip-book animation, and there are a few examples for you to check out before creating your own. If you're more adventurous, you could watch one of dozens of narrated tutorials stored as Video for Windows .AVIs. These teach you professional cartoon drawing and animation techniques. Because the .AVIs are displayed in a window beside the main program window, you can freeze the tutorial and have a try yourself.

★★★★☆

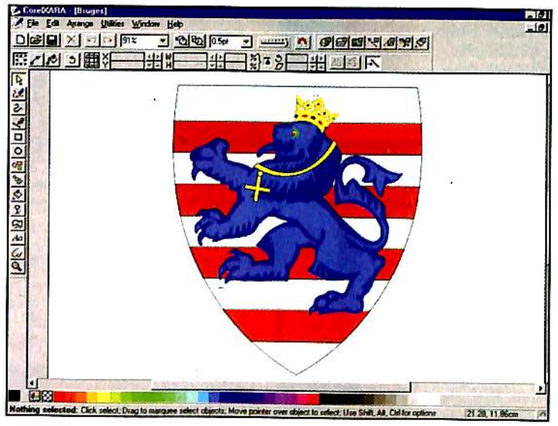
Price £88.13
Company Computers Unlimited
Telephone 0181 200 8282

Minimum system: *8Mb; 486DX; SVGA; Windows; Hard drive (27Mb); CD-ROM; Sound card*



Dabbler's interactive tutorials make it extremely easy to learn to draw cartoons and animation.

Corel Xara



Corel Xara is simpler than Corel Draw, and that may be one of its greatest advantages. You can quickly learn some of the most useful techniques thanks to Xara's on-line animated tutorials.

Nobody interested in PC graphics can have failed to notice Corel Draw, which is one of the most widely used vector programs in the World. So why on Earth would Corel be interested in getting its mitts on Xara Studio? Simple, Xara runs rings around Draw in terms of processing and redraw speed. It also has a user-interface that many people prefer.

To be honest, Corel Xara isn't really a brand new program; it's merely the re-release and re-badging of a very successful existing product. The changes from Xara Studio to Corel Xara are not easy to find because there are so few.

Compared to Corel Draw, Corel Xara is something of a light-weight. Or perhaps it would be fairer to say that compared to Xara, Draw is bloated and muscle-bound. Xara certainly provides you with a good selection of tools to create simple or complex drawings. It has stock-in-trade features like shape tools, graduated fills, freehand draw, bitmap import and so on. It also has more exotic stuff such as variable and graduated transparency, which can be applied to shapes or bitmaps to create subtle blends.

It's many times faster than Corel Draw when it comes to screen updates and image manipulation. Ironically, despite the fact that it has less complex features, this makes it a better choice when creating highly detailed images.

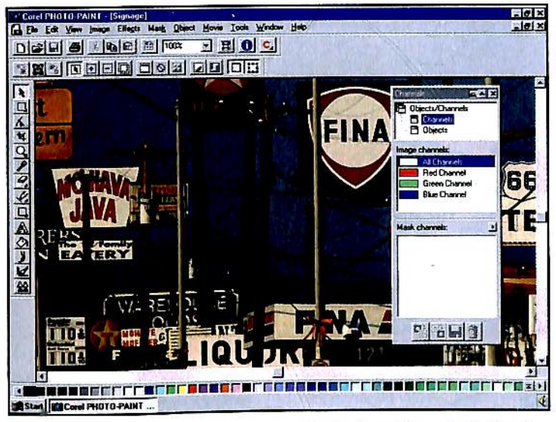
This speed is supported by a streamlined drag and drop interface. This theme is also reflected in some of the program's unique features, such as the ability to create galleries of objects which can be used in the assembly of future scenes. Corel Xara also has a colour style feature which works in a similar way to paragraph styles in a word processor, and enables you to rapidly experiment with varying colour schemes.

★★★★☆

Price £233.83
Telephone 01703 814142
Company Channel Market Makers

Minimum system: *8Mb; 486; VGA; Windows 3.12; Hard drive (6.5Mb); CD-ROM*

PhotoPaint 6



PhotoPaint has more than enough tools for the professional user. Here, we're looking at the colour channel requester.

While Adobe Photoshop reigns supreme as the king of the photo editing and retouching programs, the battle for second place has always been fought between Micrografx Picture Publisher and Corel PhotoPaint. Both companies have just released Windows 95 exclusive versions, and after playing second fiddle for years, PhotoPaint has finally taken a significant lead.

The latest version oozes new features. Artists will appreciate the fact that Corel has finally added some decent natural media tools, so you can draw with charcoal, chalk, pen and more. These help to identify the program as more than mere retouching software – you can create images from scratch now.

Nevertheless, it's as an image processing package that PhotoPaint shines. It requires eight megs of RAM, and ideally needs at least 16, yet strangely, you can load any size of image into it thanks to its partial load option. If you're working on a large, high-res image, you can load just the part that you're working on, rather than the whole thing.

The greatest addition to the program is an incredibly diverse set of filters and special effects which are completely unrivalled in any other package. One of the more useful ones is called 3D Mesh Warp which enables you to distort sections of your image by repositioning nodes on a grid. A similar plug-in for Photoshop costs over £100.

If you regularly perform similar sequences of tasks to enhance photos, you'll be glad to hear about the macro recorder, which you can use to automate repetitive tasks.

Just about every area of the program has received attention, and because its 32-bit only, it works much more quickly. PhotoPaint 6 is definitely snapping at Photoshop's heels now.

★★★★☆

Price £210.33
Company Channel Market Makers
Telephone 01703 814142

Minimum system: *8Mb; 486; VGA; Windows 95; Hard drive (5.5Mb); CD-ROM*

Animator 1.1

Few productivity programs have dominated their market quite as completely as Autodesk's 3D Studio, yet creating effective and eye-catching animation isn't merely about rendering 3D objects. There's still room for conventional techniques too.

Animator combines a number of disciplines: compositing; drawing; cel animation; video editing; special effects and audio choreography. The program's main function is the creation of two dimensional animation, either in the form of Video for Windows or Quicktime files, or as a series of full size images to be recorded individually to tape. You can literally draw each frame one at a time if you have the skill and the patience, in which case you'll find its onion skin feature useful because it enables you to see previous frames beneath the current one. Whereas traditional acetate or pen and ink animators have to draw every frame, you don't have to because the program will draw in-between frames (tweens) for you.

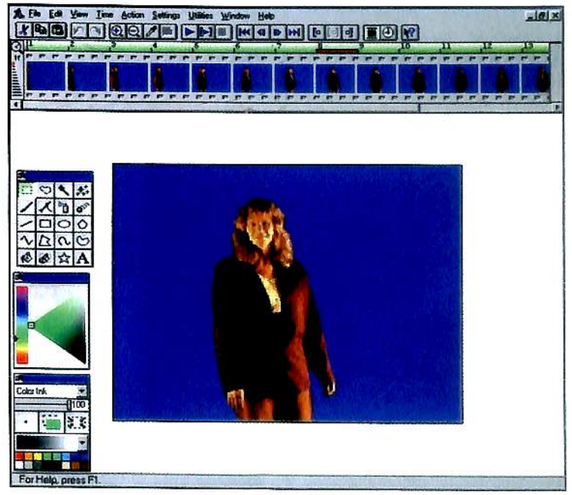
Of course, if you're looking to save time, you can use the program's selection of cut and paste features to copy single images or entire sprites from existing animations. These can then be inserted into your own, using either motion paths or freehand placement.

Incidentally, this version is a special Windows 95 offering which is theoretically optimised for the new 32-bit environment. Other than that, there are no changes between this and version 1.0.

★★★★☆

Price £292.58
Company Autodesk
Telephone 01483 303322

Minimum system: *8Mb; 486DX; VGA; Windows 3.1; Hard drive (40Mb);CD-ROM*
Recommended system: *16Mb; S-VGA*



You can use professional techniques such as blue-screening to combine animations.

digital stock libraries

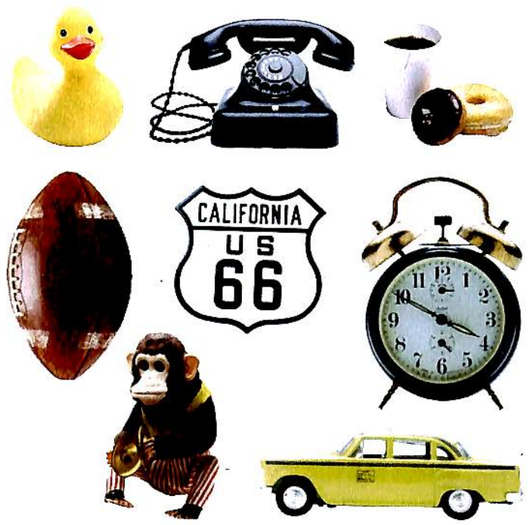
Your pages don't have to look as dull as a telephone directory. **Mat Broomfield** explores some of the best CD-ROM photo collections currently available.

Whether you design Web pages, multimedia products or magazine spreads, you'll already know the value of interesting and original images. They can transform a lifeless page, and help to set a mood more completely than any number of words could. You might already have your own photographers, or perhaps you rent photos from stock libraries, either way, your collection is likely to be of limited size and diversity. Worse yet, you'll need to scan each image when you need to use it. Perhaps you don't mind using a relatively inexpensive flatbed scanner, or maybe only the superlative quality provided by a drum scanner is good enough for you. Either way, you're committed to the expense and effort of getting the images from film to your computer.

Thanks to CD-ROM, many stock libraries are now able to put together CDs containing a hundred or more images, each of which are stored in a variety of resolutions and are ready to use. Regardless of manufacturer, each CD usually contains a themed selection of images and, whilst they're not copyright free, you can usually use them without incurring additional royalty fees. The main exception is when they're used to create a product in which the image is a central feature, such as a greeting card or wall poster. In such cases, additional fees may be negotiated with the appropriate publishers. Some of the images are simply stored as TIFF or JPEG files, whilst others include such extras as clipping paths or transflectance channels to simplify additional creative processes.

This is the first of a regular series in which we review some of the most exciting and diverse digital stock collections available. Over the coming months, these pages will provide a valuable reference to the CDs that are out there.

PhotoDisc: Everyday Objects



PhotoDisc is one of the major players in the European digital stock market, and it's very easy to see why. It has literally dozens of CDs available, but this particular trio comes from a special set known as the Objects Series. Each image contains a single object, set against a plain or graduated background. The images are expertly photographed and drum scanned, which PhotoDisc insists provides unequalled quality. In case you're thinking that graduated backgrounds might cause trouble, don't worry; every single image comes with its own built-in clipping path, which means that backgrounds disappear when the images are imported into your page layout program. In fact, only the JPEG images are stored with a clipping path, but they're the ones you'll be using for serious work anyway.

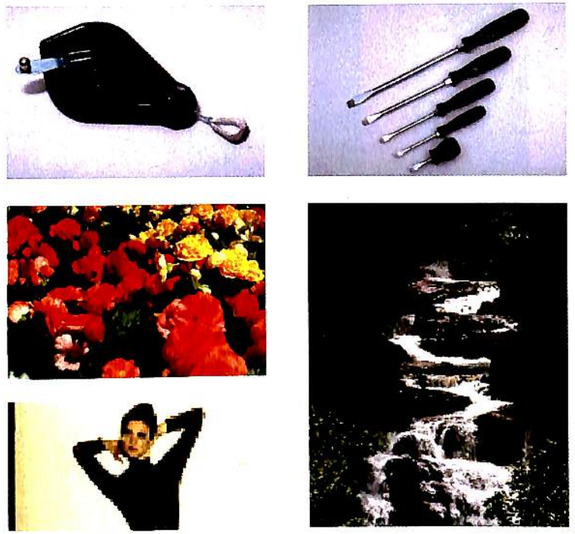
Every image is supplied in three resolutions ranging from 366x555 pixels at 72DPI, up to a massive 2565x3885 at 96DPI. Only the lowest resolution images are stored as TIFFs, and they're suitable for multimedia and on-screen work. The other two resolutions are provided as JPEGs. You're going to need a serious machine to use them properly for they occupy a significant amount of memory. Medium res images are about ten megs each in size, whilst high res ones occupy almost 30 megs. The images come with a glossy printed catalogue for quick reference. There's also a Ulead browser which can be used to view image thumbnails.

Sets 1 and 2 both contain 120 images each, whilst set 3 holds 142. Averaged out, that means that you pay about £1.30 per image – a good deal less than it would cost to hire from a traditional stock library. As for the images, there's a somewhat American flavour to many of the objects, and this tends to give them a rather retro feel, and somehow imbues the entire collection with a sense of class. There's no lack of variety, and it's hard to tell whether this is a good or a bad thing. It reduces the likelihood of you finding a specific image, but increases the chance that you'll find a greater percentage of the images useful in the future.

★★★★½

Price £163.33
Company PhotoDisc Europe
Telephone 0181 332 2020

Corel Stock Library 2



When you see what happens when relative newcomers get involved, you start to appreciate why good quality stock photography is so expensive. Corel is the newcomer in this case. Instead of acquiring a library of images by only purchasing the work of professional photographers, it's attempted to accelerate the process by opening its books to anyone.

Unfortunately, there seems to have been a lack of discrimination in the selection of images. However, its 'cast the net and see what we catch' approach does lead to tremendous diversity, giving Corel a global selection of incredible variety from which to choose its images.

This collection comprises 200 CDs, each of which holds 100 images; that's a stunning 20,000 photos for you to choose from. Chuck away the rubbish and the stuff that's just too off-the-wall and you're still left with something like 20-50 useable CDs. Corel is the cheapest supplier of stock CDs as it is, and these would normally retail for about £20 per disk. Provided you can find at least 47 of interest, then you're quids in.

The images are provided in Photo CD format. Whilst this has some advantages, only one other stock company uses this format, and it's sneered upon by those that do not. There's certainly a lack in flexibility as far as image portability is concerned but, on the other hand, it's easy to browse the images and select an appropriate size. There are five resolutions from 192x128 pixels right up to 3038x2048, all of which are stored at 400DPI. The largest images occupy approximately 18 megs in memory and, of course, all are 24-bit. Unfortunately, the Photo CD format doesn't permit you to store additional information such as clipping paths or transflectance channels, so the images are as you see them.

To be honest, the photography ranges from imaginative and professional, to clichéd and amateurish. Because there are so many images, a proper catalogue is impossible, so all you get are tiny colour pictures instead.

★★★☆☆

Price £934.13
Company Channel Market Makers
Telephone 01703 814142

Kai's Power Photos II

The name of Kai Kraus has become synonymous with creativity and originality thanks to his Power Tools and Convolver programs which took image processing into exciting new areas. Now that same refreshing originality has been applied to the business of stock photography. This is his second collection, and he appears to have improved upon the already excellent standards set by the first. This collection consists of five themed CDs: Kids Toys & Backgrounds; Hot Rods; Bugs & Butterflies; Nostalgia; and Fall & Winter Holidays. Each CD contains 75 images, some of which are arranged into scenes, which have been carefully arranged with space allocated for you to insert text or logos.

In the first set, clipping paths were defined where appropriate, but instead of leaving it there, MetaTools has decided to add functionality in the form of transflectance channels. This is a thoroughly innovative idea, and it's the first stock company to implement it. Transflectance channels retain the reflective and translucent properties of all objects in a scene. That means that if you load a transparent or semi-transparent image and paste it into another scene, you'll still be able to see through those parts of the object that are supposed to be seen through. This is applied primarily to the insects in this collection, but it's a concept with great potential for the future.

Unlike the other stock CDs we've looked at here, the images in this set have neither a fixed size, nor are stored at multiple resolutions. They are generally about 2900x1900 pixels in size, and occupy in the region of 16 megs in memory, but that's just a guide. They are all stored in TIFF format, which accounts for the fact that they're supplied on so many CDs. It also accounts for their superior quality. However, this is a slightly less wieldy format to deal with than JPEG, thanks to the time it takes to read images from CD.

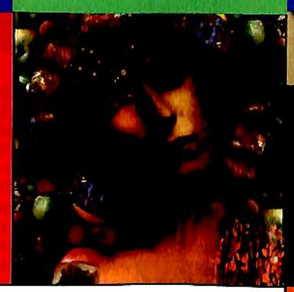
The images themselves are things of beauty, although the subjects are less than commonplace.

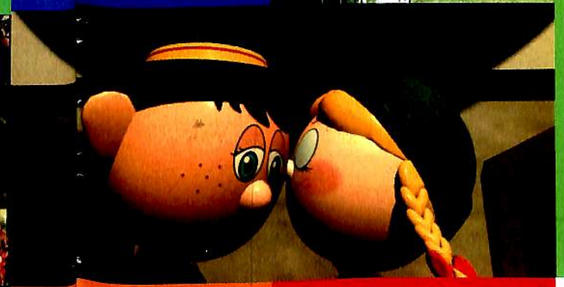
★★★★½

Price £151.58
Company Principle Distribution
Telephone 0181 813 5656

COMPUTER ARTS

computer arts





issue 2 on sale Thursday 6th June

A who's who of the digital world of graphics, sound and multimedia.

Money Back Guarantee

You can cancel your subscription at any time and get a full refund for all un-mailed copiers.

Don't miss the next issue of Computer Arts!

Now you've had a taste of Computer Arts you'll be wanting to make sure you don't miss out on the next issue. The best way to do this is to take advantage of our introductory subscription offer. You can reserve the next three, six or twelve issues of Computer Arts for as little as £12. This means that not only will you avoid the disappointment of missing an issue, you can also be sure that you're paying the lowest possible price.

To reserve your copy of Computer Arts complete and return the form below or telephone our Subscriber Hotline on 01225 822511 now!

How to reserve your copy of Computer Arts

Subscriber Hotline: 01225 822511

Fax: 01225 822523

e-mail: subs@futurenet.co.uk

World Wide Web: http://www.futurenet.co.uk/computerarts.html

Please quote ref no. COA/01 when telephoning or faxing your order.

Please start my subscription to Computer Arts at the discount rate ticked below.

Title _____ **Initials** _____

Surname

_____

Address

_____

_____

_____

_____

Post Code _____

Daytime Tel No. _____

Please start my subscription with issue no. _____

❑ 3 issues £12 ❑ 6 issues £20

❑ 12 issues £35

This offer is only available to UK readers. For information on overseas rates please telephone +44 1225 822511

PLEASE CHOOSE YOUR METHOD OF PAYMENT

❑ Cheque (Made payable to Future Publishing. Sterling Cheques on a UK account only please)

❑ Access ❑ Visa

Card No. _____

Expires _____

Signature _____

Date _____

Please return this coupon (no stamp required) to: Computer Arts Subscriptions, Future Publishing Ltd, Freepost BS4 900, Somerton, Somerset. TA11 6BR.

Please quote this reference when you telephone your order COA/01

❑ **Please tick this box if you do not want to receive information on other offers**

Future
PUBLISHING